

Remarks/Arguments:

This Amendment adds no new claims, and is provided to amend claims 1, 3, 6, 8, 9, 11, 13, 16, 18 and 19. No new matter has been added. Upon entry of this Amendment, claims 1-20 will be pending. Claims 1, 6, 8, 9, 11, 16, 18 and 19 are independent.

Rejections of the Claims under 35 U.S.C. 102

The Examiner has rejected claims 1 and 11 under 35 U.S.C. 102(e), as being anticipated by U.S. Patent No. 7,024,039, issued to Simard et al. (hereinafter Simard). Specifically, regarding claims 1 and 11, the Examiner points to Simard as describing a device for extending a character region in an image having an input part for receiving an input image, a block classification part for classifying the input image and converting pixels, a position search part for searching and determining a position of the character region, an ROC extraction part for extracting the image of the determined position, and an ROC extension part for extending the extracted image to a size of the input image, purportedly anticipating the invention as described by the Applicants in claim 1, and a method of control thereof purportedly anticipating the invention as described by the Applicants in claim 11.

The Simard reference describes a device and method for image retouching, having a boundary detector and an image extender. Specifically, the Simard reference describes a system and method for use with data compression wherein blocking artifacts along a blocking boundary are reduced by extending foregrounds and backgrounds along the boundary. In doing so, the image retoucher 100 receives an image input and a binary mask (see col. 6, lines 16-23). It is the information stored in the received binary mask that indicates whether each pixel is in a background or foreground, and where a boundary exists.

The Examiner points to the image retoucher 100 as describing a block classification part as claimed by the Applicants. However, the retoucher of Simard receives a digital mask with the image, which has already defined each pixel as a background or foreground pixel. Accordingly, the pixels in the Simard reference are received already classified as either background or foreground pixels in the mask, and the function of the Simard system and method is to detect the boundary (see Fig. 1, in which a boundary detector part is shown, but

no classification part, and see col. 7, lines 48-52 and lines 65-67, and col. 8, lines 1-2). As such, the image retoucher 100 does not require nor describe a block classification part as claimed by the Applicants, but relies on the receipt of a binary mask with the image.

The Examiner states in response to the Applicants' arguments of May 11, 2007, that the receipt and use of the binary mask in Simard discloses the block classification part for classifying the input image as described by the Applicants in claims 1 and 11. The Examiner further states that the Applicants fail to recite how classification occurs using the block classifications part, such that the binary mask and image retoucher 100 of the Simard reference describes the block classifications part.

However, the Applicants have amended claims 1 and 11 to recite that the block classification part classifies the input image into character blocks and background blocks using block energy values, which further distinguishes the block classification part from the simple use of a mask as disclosed in the Simard reference. That is, the Simard reference does not disclose or reasonably suggest the use of block energy values to classify the input image into character blocks and background blocks as described by the Applicants in claims 1 and 11 as amended. This is not new matter, and is recited elsewhere in the specification (see for example, page 16, lines 5-12). Claims 6, 8, 9, 16, 18 and 19 have been amended in a similar manner.

Further, the Examiner points to the boundary detector 110 operation of the Simard reference for detecting horizontal and vertical lines of a boundary (see col. 8, lines 2-12), as describing a position search part as claimed by the Applicants and points to the image retoucher 100 as describing a region of contents extractor as claimed by the Applicants. The boundary detector of Simard searches for lines of pixels longer than a threshold to locate the boundary to be used for the expansion of regions near the boundary. There is no disclosure or description of the extraction of an image, nor the extraction of an image as found relative to the boundary, such as an image in a determined character region. The Simard reference simply describes a system and method for locating a boundary, and extending regions near the boundary.

The Examiner states in response to the Applicants' arguments of May 11, 2007, that detecting is synonymous with extracting, and points to a Merriam Webster definition as supporting such, therefore the detection of the boundary in the Simard reference discloses the extraction of the character region described by the Applicants in claims 1 and 11.

However, the Applicants have been unable to locate the Merriam Webster supporting documentation that "detecting" is synonymous with "extracting", and assert that extracting is clearly distinguishable from detecting. For example, the Applicants claim a region of contents (ROC) extraction part for *extracting* the image in the determined position of the character region *from* the input image, thereby eliminating the remaining input image from the character region (see also Applicants' page 9, lines 1-3). The goal of an extraction is the removal of one element from another and not simply detecting one element from another. The ROC extraction part performs an extraction of an image from an input image and more specifically, performs an extraction of an image in the determined position of the character region from an input image, and would not be disclosed by a part that performs a detection of an image from an input image.

The Applicants have amended claims 1 and 11 to recite that the ROC extraction part extracts the image in the determined position of the character region from the input image and substantially separates the character region from the background region, which further distinguishes extraction from detection as disclosed in the Simard reference. That is, the Simard reference does not disclose or reasonably suggest the extraction of the character region to separate the character region from the background region as described by the Applicants in claims 1 and 11 as amended. This is not new matter, and is recited elsewhere in the specification (see for example, page 9, lines 1-3). Claims 6, 8, 9, 16, 18 and 19 have been amended in a similar manner.

The Examiner has also interpreted the image retoucher 100 of the Simard reference as detecting or extracting the image comprising the foreground and/or background and extending the extracted image to the size of the input image. The Applicants respectfully disagree with this interpretation and points to Simard Figs. 5 and 6 which show that the boundary is determined, and the regions near the boundary are simply extended. There is no

disclosure or suggestion of extracting an image in a character region, nor the extension of the extracted region to the size of the input image as describe by the Applicants in claims 1 and 11. The extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of the expansion of an extracted image *to the size of the input image*. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the detected boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image as described by the Applicants in claims 1 and 11.

The Examiner states in response to the Applicants' arguments of May 11, 2007, that as detecting is synonymous with extracting, the extension of the detected boundary region discloses the extension of the extracted region as described by the Applicants in claims 1 and 11. However, as noted above, the Applicants assert that extracting is clearly distinguishable from detecting. The goal of an extraction is the removal of one element from another and not simply detecting one element from another. The ROC extension part performs an extension of the extracted image from an input image, and would not be disclosed by a part that performs an extension of a detected image in an input image.

The Examiner also points to the image extender of Simard (col. 6, line 16 and col. 6, lines 50-55) as disclosing a part for extending an extracted image. The image extender 120 of the image retoucher is provided to extend the regions near the detected boundary. However, as noted above, neither the boundary, nor regions near the boundary, are described as extracted images. That is, there is no need for an image extraction in Simard since the boundary is simply detected and the regions near the boundary are extended (see col. 6, lines 50-56). There is no disclosure or suggestion of extracting an image in a character region, nor the extension of the extracted region to the size of the input image as described by the Applicants in claims 1 and 11.

For these reasons, the Applicants assert that the Simard reference does not disclose or reasonably suggest each element as claimed by the Applicants in independent claims 1 and 11 as amended. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 102(e) of independent claims 1 and 11.

Rejections of the Claims under 35 U.S.C. 103

The Examiner has rejected claims 2-3 and 12-13 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of U.S. Patent No. 6,782,135, issued to Viscito et al. (hereinafter Viscito), and further in view of U.S. Patent No. 5,900,910, issued to Hirabayashi (hereinafter Hirabayashi). Specifically, regarding claims 2 and 12, the Examiner points to Simard as disclosing the claimed invention with the exception of the block classification part having an image division part, a discrete cosine transform conversion part, an energy calculation part, a threshold calculation part, a classification part and a block filling part. The Examiner points to Viscito and Hirabayashi as disclosing the remaining elements, purportedly rendering obvious the invention as described by the Applicants in claim 2, and a control method thereof purportedly rendering obvious the invention as described by the Applicants in claim 12.

The Viscito reference describes a complete perceptual masking model implemented as an encoder-IC (see col. 5, lines 38-60). The perceptual model includes activity-masking, luminance-sensitivity, temporal-masking and positional sensitivity. To achieve the desired results, a simple energy model is not used (see col. 5, lines 47-52 and col. 6, lines 3-5). In the earlier office action of February 12, 2007, the Examiner points to the DCT part 306 of Viscito Fig. 3a, the energy analyzer 701 of Viscito Fig. 7, the energy summer 806 of Viscito Fig. 8, and the classification part of Viscito Fig. 10b as disclosing the block classification part as described by the Applicants in claims 1, 2, 11 and 12. In particular, the Examiner points to the energy summer 806 of Viscito Fig. 8 as disclosing a system and method for generating a threshold value as recited in dependent claims 2 and 12, and independent claims 1 and 11 as amended.

However, the energy summer 806 of the activity-masking analyzer 411 of Viscito Fig. 8 is used with the remaining components of the activity-masking analyzer 411 to provide an energy measure $s(k)$ for the current block (see col. 9, lines 56-66). There is no disclosure of determining a threshold value, or a value which will be used in a comparison or to indicate a minimum level for dividing block values. The output of the activity-masking analyzer 411 is simply the energy measure $s(k)$ for the current block and does not disclose any comparison or comparison value such as the threshold value as recited in claims 1, 2, 11 and 12.

The Hirabayashi reference describes a movement vector detecting apparatus having an evaluation circuit 21 which receives blocks of image data (see Fig. 2, and col. 5, lines 13-17). However, the evaluation circuit 21 of Hirabayashi simply evaluates the pixels of the received image data. A threshold is described, but only in relation to deciding whether to perform block matching by color components or block matching by a luminance component, and which are adaptively selected in accordance with the comparison result to thereby detect the movement vector (see col. 5, lines 25-36 and claim 8). There is no disclosure in the Hirabayashi reference of a threshold value as recited in claims 2 and 12, and using a threshold value for classifying the input image into character blocks and background blocks as recited in claims 1 and 11 as amended.

Accordingly, the Applicants assert that the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 1-2 and 11-12. That is, the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, a threshold value or using a threshold value for classifying the input image into character blocks and background blocks. Accordingly, Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 2 and 12.

Regarding claims 3 and 13, the Examiner points to Simard as disclosing the claimed invention with the exception of the block size and energy calculation. The Examiner points to Viscito as disclosing the remaining elements, purportedly rendering obvious the invention

as described by the Applicants in claim 3, and a control method thereof purportedly rendering obvious the invention as described by the Applicants in claim 13.

However, for the reasons stated above, the Applicants assert that the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, each element as described by the Applicants in claims 1 and 11 as amended, from which claims 3 and 13 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 3 and 13 for the same reasons.

The Examiner has rejected claims 4, 5, 14 and 15 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of U.S. Patent No. 6,043,823, issued to Kodaira et al. (hereinafter Kodaira), and in view of Applicants' prior art (hereinafter Background). Specifically, regarding claims 4 and 14, the Examiner points to Simard as disclosing the claimed invention with the exception of the character region aspect ratio. The Examiner points to Kodaira as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 4, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 14. Regarding claims 5 and 15, the Examiner points to Simard as disclosing the claimed invention with the exception of performing bilinear interpolation. The Examiner points to the Applicants' Background as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 5, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 15.

However, for the reasons stated above, the Applicants assert that the Simard and Kodaira references, and Applicants' Background do not disclose or reasonably suggest each element as claimed by the Applicants in independent claims 1 and 11 as amended, from which claims 4, 5, 14 and 15 depend. Specifically, there is no disclosure or suggestion in Simard, Kodaira or the Background of extending the extracted region to the size of the input image. As noted above, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. In the Kodaira reference, a region recognition section measures the size of an extracted section, but this information is used for

recognizing type or importance of the section. A user edit process can be performed, but is limited to adjusting Table values (see Fig. 6, and col. 12, lines 42-51). There is no disclosure or suggestion in either the Simard reference or the Kodaira reference of the expansion of an extracted image to the size of the input image.

The Examiner points to the earlier argument in regard to claims 1 and 11 and states that the Applicants do not recite how to expand the extracted image to the size of the input image and therefore, the extension described by the Simard reference discloses the extending of the extracted image of the character region to a size of the input image. However, as noted above, there is no disclosure or suggestion in the Simard reference of the expansion of an *extracted image* to the size of the input image. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the detected boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground in Simard, there is no disclosure or suggestion of expansion to the size of an input image as described by the Applicants in claims 1 and 11 from which claims 4, 5, 14 and 15 depend.

The Applicants do not believe that exemplary details of how to expand the extracted image to a size of an input image is required in claims 1 and 11 to be distinguishable over Simard when Simard fails to even teach the elements that are recited in claims 1 and 11, specifically the expansion or extension of any image, extracted or otherwise, to a size of the input image. However, dependent claims 5 and 15 recite exemplary details of how to expand the extracted image to a size of an input image (see also page 9, lines 5-11).

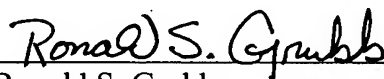
Accordingly, for the reasons stated above, the Applicants assert that the Simard and Kodaira references, and Applicants' Background do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in 1 and 11 as amended, from which claims 4, 5, 14 and 15 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 4, 5, 14 and 15 for the same reasons.

Regarding the remaining claims 6-10 and 16-20, the Examiner points to Simard as disclosing the claimed invention. However, as noted above, independent claims 6, 8, 9, 16, 18 and 19 have been amended in substantially the same manner as claims 1 and 11. Claims 3 and 13 have been amended to correct typographical errors. Accordingly, for the reasons stated above in regard to independent claims 1 and 11 as amended, the Applicants assert that the Simard, Viscito and Hirabayashi references, and the Applicants' Background, do not disclose or reasonably suggest, alone or in combination, each element as described by the Applicants in independent claims 6, 8, 9, 16, 18 and 19 as amended, and from which claims 7, 17 and 20 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of independent claims 6, 8, 9, 16, 18 and 19, and dependent claims 7, 17 and 20 for the same reasons.

Conclusion

In view of the above, it is believed that the application is in condition for allowance and notice to this effect is respectfully requested. Should the Examiner have any questions, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,



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Dated: November 21, 2007

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